



IEEE CINCINNATI SECTION NEWSLETTER – SEPT. 2009

SEPTEMBER MEETING

The Tesla Roadster: a plug-in electric sports car - demonstration and description

DATE: Thursday, September 24, 2009
PLACE : Raffel's – 10160 Reading Road (see below for directions)
TIME : 5:30 p.m. to 6:00 p.m. - Social Time
6:00 p.m. to 7:00 p.m. - Dinner
7:00 p.m. to 8:30 p.m. - Presentation
COST FOR DINNER: \$10.00 per person – Regardless of Membership or Membership Grade!

NOTE: DINNERS ARE ALWAYS OPTIONAL - YOU MAY ATTEND THE PROGRAM ONLY.

MENU SELECTIONS: Maryland Crab Cakes, Stuffed Pork Chops, Grilled Portobello with Ratatouille & Yellow Rice, Twice Baked Potatoes, Sautéed Vegetables, Tossed Salad, Dinner Rolls and Butter, Bar Cookies, Coffee, Tea, Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks.

LOCATION: Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately $\frac{3}{4}$ of a mile to Reading Rd. and turn right on Reading.

RESERVATIONS: Please email Fred Nadeau for reservations at <mailto:fnadeau1@earthlink.net> (preferred) or call the Section Voice Mail at 513-629-9380 by **Noon, Tuesday, September 22, 2009** if you plan to attend. Please leave your Name, IEEE Member Number, and a daytime telephone number.

PE CREDITS: Depending on the subject matter, attendance at IEEE Cincinnati Section Meetings now qualifies the attendee for Professional Development Hours towards renewal of Professional Engineers Licenses. Required documentation will be available following the meeting! The Section Meetings also provide a great opportunity to network with fellow engineers in the area.

ABOUT THE MEETING: The meeting will feature a demonstration by Mr. Michael Valentine, of the Tesla Roadster, a plug-in electric sports car. It has an electric motor, recharged either from standard 110VAC outlet or via special recharging unit powered by higher domestic voltages and has a range per full charge in excess of 200 miles. Superb performance, 0-60mph in the 4-second range, based on Lotus chassis, and excellent handling characteristics. Mr. Valentine is the founder and president of Valentine Research, Inc., a manufacturer of police radar detectors located in Blue Ash, Ohio. Prior to founding this company, he was one of the cofounders, and first CEO, of Cincinnati Microwave, Inc., and co-inventor of the Escort radar detector. He is a graduate of the University of Cincinnati in electrical engineering, and worked as an electrical engineer prior to starting his own business in the late seventies.

MEMBERSHIP NEWS

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Mark G. Atchison	Michael Keyes
Gordon C. Baker	Thomas Klevinsky
Omar Baldridge	Marvin Allen Knorr
R H. Black	Christian Koch
Thomas Blauvelt	Paul M. Krieg
Timothy Bueno	Alex R. Kuhl
Mark A. Burcham	Roy M. Kulick
Jeremy Burgess	Victor Lin
Richard Nathan Burns	Patrick Lipka
Stephen Caddell	Kuheli Louha
Garry Chapman	Thomas M. Lucas
Chelsea Chase	Yuliya Malakhova
Ryan Child	Jordan Malof
Jacqueline Coates	Paul Meredith
Israel T. Cortes	Jeff L. Miller
Austin P. Crispens	Dirk W. Mooibroek
Justin Andrew Daniels	John Norton
Ian T. Daniher	Kevin Pasko
Kaustubh K. Deshmukh	Dale R. Peterson
Heath Edenfield	Benjamin Pierce
James Estep	Kurt Prenger
David Ferguson	Raj R. Reddy
Romana Fernandes	Richard Riccetti
Michael P. Fink	Michael N. Rissover
Samuel R. Frushour	Michael J. Rust
Ryan Gerken	Chad Aaron Ruttencutter
Adam Gerlach	George Michael Shiekh
Amer Ghanem	Vonise Shoemaker
Phillip Golden	Evan Blyth Sneath
Ryan Grimes	Sibichen J. Thekveli
Erik Hajek	Tommy V. Trimeloni
Allan K. Hall	Darren Varga
Justin Hamm	Ramesh Reddy Vemula
Michael Harness	Tim L. Vernier
Nathaniel Hausrath	Paul Vincent
Bing He	Edward E. Walcott
Misti Hill	Nathan A. Walker
Brent Humphrey	Hong Wang
Pritesh N. Johari	Eric Michael Webb
Andrew Johnson	Richard D. Winters
Jigar Kalaria	Huaping Wu
Paul J. Kern	

We wish to welcome these new members to the Cincinnati Section!!!

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Bob Morrison, Editor

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The Birth of the Term "Microwaves"

The term microwaves was used for the first time in an international journal in the October 1932 issue of the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) in an article by Nello Carrara: "The detection of microwaves" (the original manuscript was received by the Institute on April 2, 1932).

This term has been, since then, commonly used to indicate those electromagnetic waves with wavelength ranging from 1 mm to 1 m. These limits have been arbitrarily defined: in practice they constitute an attempt to define the microwave frequency range as the one located between the frequencies of electromagnetic waves employed for radio and television broadcasting and those of infrared rays.

The steadily improving technology of this range of frequencies has characterized the development of telecommunications since the beginning of World War II. The demand for more and more high frequencies in telecommunications originated for various well known reasons, for the sake of brevity not discussed here, and attracted many researchers to this field. For example, Guglielmo Marconi (1887-1937), in the decade from 1919 to 1931, directed the attention of researchers to the potential of the microwave frequency range. The first radiowave broadcasting experiments with microwaves, were realized in 1931, by Marconi (at 50 cm) through the Tigullio Gulf in Liguria (Italy), and by Andre G. Clavier (at 17.6 cm) across the English Channel. Later on, in April 1932, Marconi realized the first microwave terrestrial link between Villa Mondragone (Monteporzio Catone, Rome, Italy) and the Vatican State.

This period of time was characterized also by the first theoretical studies on microwave propagation and the first experiments involving devices to generate and detect them. In this context worked the Italian physicist Nello Carrara (1900-1993) when he was with the RIEC (Regio Istituto Elettrotecnico e delle Comunicazioni [Royal Institute for Electrical Techniques and Communications]) of the Italian Navy in Leghorn. The Institute, founded by Giancarlo Vallauri in 1916, housed the first Italian group of researchers in the fields of microwave engineering and radar techniques. The RIEC maintained a prominent position in this field for many years.

In a paper dated March 1932, published in the first issue of the Italian journal *Alta Frequenza* (the journal was founded by Vallauri), Carrara stated that "un triodo, ad elettrodi cilindrici, con tensione di placca nulla o negativa e con tensione di griglia fortemente positiva, puoemettere onde elettromagnetiche di frequenza elevatissima (microonde)" [a triode with cylindrical electrodes, with a low anode potential and a highly positive grid potential, is capable of generating electromagnetic waves of a very high frequency (microwaves)] and explicitly related the term microwaves to electromagnetic waves with frequencies around 109 Hz.

Incidentally, it is worth emphasizing that in the same period many other terms were used to denote the range of frequencies now referred to as microwaves. Among others, the terms microrays and quasi-optical waves were introduced by Clavier and Eduard Karplus, respectively, but it was the term microwaves that was commonly adopted in scientific and technical terminology.

This contribution is a part of a paper, with iconographic material, to be published in the *IEEE Microwave Theory and Techniques Newsletter*.

*Giuseppe Pelosi, Guest History Editor
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